On the Interdependence of Plants.—Mr. Thomas Meehan called attention to the well-known fact in geographical botany, that species of plants which once had evidently a wide dispersion now existed only as separate colonies often of a few plants only, the intermediates between these widely separated colonies having evidently disappeared. The cause of these disappearances had not been definitely determined. It was found that the still existing individuals were evidently in good health; they flowered freely, and perfected seeds, but still the plants did not spread. He gave a number of illustrations within his own observation of a few rare plants that had maintained their existence for over a quarter of a century, with about the same number of individuals now as at the beginning of the term. As the seeding was regular and perfect, why was dispersion arrested? There could be but one answer. Something prevented the germination of the seeds, or of subsequent growth after germination. No doubt there may be other causes, but this one must have a leading influence.

It then becomes an interesting branch of study to inquire why these seeds do not germinate, and thus aid the plant to recover the ground lost through destructive agencies?

An observation extending over about six years led him to conclude that there was much in the interdependence of plants. Whatever affected the existence of individuals of one species might lead to the extermination of numerous others, and the successful endeavor of one to establish itself in one locality gave the necessary opportunity to follow and sustain themselves. This observation was as follows: A wood, chiefly of chestnut and oak, of about an acre in extent, was turned into a picnic ground—a place for summer pleasure parties. All the shrubby undergrowth was cut away. The plants which might have grown up, were kept tolerably well trodden down by the numerous visitors to the wood, except one solitary blackberry plant (*Rubus villosus*), which, being thorny, led to its avoidance by human feet. After the second summer, some change in railroad arrangements led to the abandonment of the wood for picnic purposes, and plants had a chance to grow up again without disturbance from human beings. The blackberry plant, by the aid of its creeping roots now forms a thicket of about thirty feet in diameter. The following list of plants growing among the blackberries, that were not found in any part of the wood, except the last two, which were in small quantities here and there, was made in October of this year:—

Eupatorium perfoliatum, *Rubus occidentalis*, *Liriodendron tulipiferum*, *Cornus alternifolia*, *Smilacina racemosa*, *Ambrosia artemisiæfolia*, *Laurus sassafras*, *Polygonum Persicaria*, *Achillea millefolium*, *Solidago canadensis*, *Mulgedium acuminatum*, *Bidens frondosa*, *Silene verticillata*, *Fragaria virginiana*, *Aster longifolia*, *Eupatorium album*, *Circæa lutetiana*, *Geranium maculatum*,

Acer rubrum, *Phytolacca decandra*, *Muhlenbergia diffusa*, *Potentilla canadensis*, the last two to some extent in the wood.

All the kinds, however, grew in the vicinity of the acre of woodland, though not within its limits, and it was easy to note that they had grown from seeds falling or brought to the blackberry patch during the last three or four years. Those who are familiar with the seeds of these plants will understand that there is nothing special about the seeds of these species that would easily lead to their being brought there by birds that might rendezvous in the thickets. We must look to the wind as the chief agent in transporting them there. This being the case, we should look for the plants from wind-sown seeds in other portions of the wood, as well as in the blackberry patch. That they are not in the wood elsewhere permits us to say that the shade, moisture, preservation of decaying leaves, or of some other incident not acceptable to other plants in the wood, but favorable to these strangers, gave them the chance to sprout and grow. They were, in fact, dependent on the blackberry for their first start in life. This conclusion was further evidenced by the fact that, though some of the annuals had evidently seeded and reproduced plants for several successive seasons, no plants were found spreading out of the protecting area of the blackberry thicket. Certainly these species were all dependent here on this plant, as this plant would probably be dependent on others in some other instances.

How some plants can exist, grow healthily, produce seed, and not spread, Mr. Meehan illustrated in the case of *Shortia galacifolia*, the original locality of Michaux having a few months ago been rediscovered by Professor C. S. Sargent. Though it had maintained itself for the best part of a century, it had existed without spreading. Some circumstance had evidently prevented the seed from germinating, and these circumstances would undoubtedly be controlled by the presence or absence of some friendly plant. He offered the facts as a contribution to the study of the interdependence of plants.

October 26.

Mr. Geo. W. Tryon, Jr., in the chair.

Thirteen persons present.

The following was ordered to be printed:—